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USPT	18 and 19	22	<u>L11</u>
USPT	18 and 19	22	<u>L10</u>
USPT	(hair or keratin\$3) near5 (dye\$6 or color\$4 or colour\$4)	3810	<u>L9</u>
USPT	16 and 17	896	<u>L8</u>
USPT	donor or glucose or sorbose or xylose or glycerol or dihydroxyacetone or (dihydroxy adj acetone) or lactic or lactate or pyruvic or pyruvate or uric or uricate	157847	<u>L7</u>
USPT	(11 or 14 or 15) near10 (12 or 13)	1061	<u>L6</u>
USPT	laccase or peroxidase or protease or cellulase or lactase or amylase	31965	<u>L5</u>
USPT	oxidase or uricase	10305	<u>L4</u>
USPT	dielectron reducing	3	<u>L3</u>
USPT	oxidoreductase or oxoreductase or ((oxo or oxido) adj reductase)	1479	<u>L2</u>
USPT	enzyme	80699	<u>L1</u>

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Entry 1 of 22

File: USPT

Apr 18, 2000

US-PAT-NO: 6051033

DOCUMENT-IDENTIFIER: US 6051033 A

TITLE: Method for enzymatic treatment of wool  
DATE-ISSUED: April 18, 2000

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
McDevitt; Jason Patrick	Wake Forest	NC	N/A	N/A
Winkler; Jacob	K.o slashed.benhavn S	N/A	N/A	DKX

US-CL-CURRENT: 8/115.51; 435/193, 435/194, 435/263, 435/264, 435/267, 8/107,  
8/111, 8/127.51, 8/127.6, 8/128.3, 8/137, 8/401

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Image
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☐ 2. Document ID: US 6036729 A

Entry 2 of 22

File: USPT

Mar 14, 2000

US-PAT-NO: 6036729

DOCUMENT-IDENTIFIER: US 6036729 A

TITLE: Enzymatic method for textile dyeing  
DATE-ISSUED: March 14, 2000

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Barfoed; Martin	Raleigh	NC	N/A	N/A
Kirk; Ole	Virum	N/A	N/A	DKX

US-CL-CURRENT: 8/401; 435/263, 8/404, 8/405, 8/406, 8/416, 8/421, 8/423, 8/424,  
8/436, 8/552, 8/649, 8/916, 8/917

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Image
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☐ 3. Document ID: US 6027719 A

Entry 3 of 22

File: USPT

Feb 22, 2000

US-PAT-NO: 6027719

DOCUMENT-IDENTIFIER: US 6027719 A

TITLE: Aqueous cosmetic composition containing stably solubilized uric acid and water-soluble polymer and method for stably solubilizing uric acid in aqueous cosmetic composition  
 DATE-ISSUED: February 22, 2000

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Tomura; Kazuyo	Osaka	N/A	N/A	JPX
Ogata; Akiko	Osaka	N/A	N/A	JPX
Mikami; Kakunori	Osaka	N/A	N/A	JPX
Tsujino; Yoshio	Osaka	N/A	N/A	JPX

US-CL-CURRENT: 424/78.02

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWC	Image
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☐ 4. Document ID: US 6008029 A

Entry 4 of 22

File: USPT

Dec 28, 1999

US-PAT-NO: 6008029

DOCUMENT-IDENTIFIER: US 6008029 A

TITLE: Purified coprinus laccases and nucleic acids encoding the same  
 DATE-ISSUED: December 28, 1999

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Yaver; Debbie Sue	Davis	CA	N/A	N/A
Brown; Kimberley M.	Elk Grove	CA	N/A	N/A
Kauppinen; Sakari	Copenhagen	N/A	N/A	DKX
Halkier; Torben	Frederiksberg	N/A	N/A	DKX

US-CL-CURRENT: 435/189; 435/252.3, 435/254.11, 435/320.1, 435/325, 435/410, 536/23.2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWC	Image
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☐ 5. Document ID: US 5981243 A

Entry 5 of 22

File: USPT

Nov 9, 1999

US-PAT-NO: 5981243

DOCUMENT-IDENTIFIER: US 5981243 A

TITLE: Purified myceliophthora laccases and nucleic acids encoding same  
 DATE-ISSUED: November 9, 1999

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Berka; Randy Michael	Davis	CA	95616	N/A
Brown; Stephen H.	Davis	CA	95616	N/A
Xu; Feng	Woodland	CA	95776	N/A
Schneider; Palle	DK-2750 Ballerup	N/A	N/A	DKX
Oxenb.o slashed.11; Karen M.	DK-2920 Charlottenlund	N/A	N/A	DKX
Aaslyng; Dorrit A.	Gartnerkrogen 69	N/A	N/A	DKX

US-CL-CURRENT: 435/189; 536/23.2, 8/401

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Image
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☐ 6. Document ID: US 5981718 A

Entry 6 of 22

File: USPT

Nov 9, 1999

US-PAT-NO: 5981718

DOCUMENT-IDENTIFIER: US 5981718 A

TITLE: Polypeptide with reduced allergenicity

DATE-ISSUED: November 9, 1999

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Olsen; Arne Agerlin	Virum	N/A	N/A	DKX
Hansen; Lars Bo	Herlev	N/A	N/A	DKX
Beck; Thomas Christian	Birker.o slashed.d	N/A	N/A	DKX

US-CL-CURRENT: 530/402; 435/189, 435/193, 530/350, 530/403

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Image
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☐ 7. Document ID: US 5972670 A

Entry 7 of 22

File: USPT

Oct 26, 1999

US-PAT-NO: 5972670

DOCUMENT-IDENTIFIER: US 5972670 A

TITLE: Blue copper oxidase mutants with enhanced activity

DATE-ISSUED: October 26, 1999

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Feng; Xu	Woodland	CA	95776	N/A
Berka; Randy M.	Davis	CA	95616	N/A
Wahleithner; Jill Angela	Davis	CA	95616	N/A

US-CL-CURRENT: 435/189; 435/252.33, 435/254.2, 435/254.3, 435/320.1, 536/23.2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Image
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☐ 8. Document ID: US 5972042 A

Entry 8 of 22

File: USPT

Oct 26, 1999

US-PAT-NO: 5972042

DOCUMENT-IDENTIFIER: US 5972042 A

TITLE: Method for dyeing a material with a dyeing system which contains an enzymatic oxidizing agent

DATE-ISSUED: October 26, 1999

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Barfoed; Martin	Raleigh	NC	N/A	N/A
Kirk; Ole	Virum	N/A	N/A	DKX

US-CL-CURRENT: 8/401; 8/552, 8/618, 8/649, 8/916, 8/918, 8/920, 8/921, 8/922, 8/924

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Image
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☐ 9. Document ID: US 5951714 A

Entry 9 of 22

File: USPT

Sep 14, 1999

US-PAT-NO: 5951714

DOCUMENT-IDENTIFIER: US 5951714 A

TITLE: Enzymatic discharge printing of dyed textiles  
 DATE-ISSUED: September 14, 1999

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Hall; Gregory K.	Woodbury	MN	N/A	N/A
Stewart; Charles W.	Raleigh	NC	N/A	N/A
Screws; Garrett A.	Raleigh	NC	N/A	N/A

US-CL-CURRENT: 8/102; 101/483, 101/487, 101/488, 101/494, 435/263, 8/101, 8/107,  
8/111, 8/114, 8/115, 8/401

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Image
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☐ 10. Document ID: US 5948122 A

Entry 10 of 22

File: USPT

Sep 7, 1999

US-PAT-NO: 5948122

DOCUMENT-IDENTIFIER: US 5948122 A

TITLE: Enzymatic methods for dyeing with reduced vat and sulfur dyes  
 DATE-ISSUED: September 7, 1999

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Xu; Feng	Woodland	CA	N/A	N/A
Salmon; Sonja Irene	Raleigh	NC	N/A	N/A

US-CL-CURRENT: 8/401; 435/263, 8/111, 8/404, 8/436, 8/602, 8/613, 8/650, 8/652,  
8/653, 8/917, 8/921, 8/922, 8/924, 8/927

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Image
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Entry 11 of 22

File: USPT

May 4, 1999

US-PAT-NO: 5899212

DOCUMENT-IDENTIFIER: US 5899212 A

TITLE: Re-formation of keratinous fibre cross links  
DATE-ISSUED: May 4, 1999

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
S.o slashed.rensen; Niels Henrik	Sk.ae butted.vinge	N/A	N/A	DKX
McDevitt; Jason Patrick	Wake Forest	NC	N/A	N/A

US-CL-CURRENT: 132/203; 132/200, 132/208, 435/189, 8/401

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWC	Image
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☐ **12. Document ID: US 5858645 A**

Entry 12 of 22

File: USPT

Jan 12, 1999

US-PAT-NO: 5858645

DOCUMENT-IDENTIFIER: US 5858645 A

TITLE: Assay utilizing hydrogen peroxide adduct  
DATE-ISSUED: January 12, 1999

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kuzuya; Keiko	Tokyo	N/A	N/A	JPX
Yamauchi; Tadakazu	Tokyo	N/A	N/A	JPX

US-CL-CURRENT: 435/4; 435/28, 435/6, 435/7.1, 435/7.2, 435/7.91, 435/7.92,  
435/7.93, 435/7.94

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWC	Image
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☐ **13. Document ID: US 5856451 A**

Entry 13 of 22

File: USPT

Jan 5, 1999

US-PAT-NO: 5856451  
DOCUMENT-IDENTIFIER: US 5856451 A

TITLE: Method for reducing respiratory allergenicity  
DATE-ISSUED: January 5, 1999

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Olsen; Arne Agerlin	Virum	N/A	N/A	DKX
Hansen; Lars Bo	Herlev	N/A	N/A	DKX
Beck; Thomas Christian	Birker.o slashed.d	N/A	N/A	DKX

US-CL-CURRENT: 530/402; 435/189, 435/193, 530/350, 530/403

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Image
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☒ 14. Document ID: US 5849041 A

Entry 14 of 22

File: USPT

Dec 15, 1998

US-PAT-NO: 5849041  
DOCUMENT-IDENTIFIER: US 5849041 A

TITLE: Oxidation hair dye composition and method of dyeing hair using same  
DATE-ISSUED: December 15, 1998

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kunz; Manuela	Marly	N/A	N/A	CHX
Le Cruer; Dominique	Bonnefontaine	N/A	N/A	CHX

US-CL-CURRENT: 8/408; 424/94.4, 8/401, 8/405, 8/406

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Image
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☐ 15. Document ID: US 5834299 A

Entry 15 of 22

File: USPT

Nov 10, 1998

US-PAT-NO: 5834299  
DOCUMENT-IDENTIFIER: US 5834299 A

TITLE: Method for dehairing of hides or skins by means of enzymes  
DATE-ISSUED: November 10, 1998

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Andersen; Lars Peter	Klampenborg	N/A	N/A	DKX

US-CL-CURRENT: 435/265; 8/94.18

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Image
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☐ 16. Document ID: US 5833969 A

Entry 16 of 22

File: USPT

Nov 10, 1998

US-PAT-NO: 5833969  
DOCUMENT-IDENTIFIER: US 5833969 A

TITLE: Aqueous cosmetic composition containing stably solubilized uric acid and amphoteric surfactant and method for stably solubilizing uric acid in aqueous cosmetic composition  
DATE-ISSUED: November 10, 1998

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Tsujino; Yoshio	Osaka	N/A	N/A	JPX
Ogata; Akiko	Osaka	N/A	N/A	JPX
Tomura; Kazuyo	Osaka	N/A	N/A	JPX

US-CL-CURRENT: 424/70.122; 424/401, 424/690, 424/691, 424/692, 424/693, 424/70.1, 424/70.21, 424/719, 424/722

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Image
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☐ 17. Document ID: US 5795760 A

Entry 17 of 22

File: USPT

Aug 18, 1998

US-PAT-NO: 5795760  
DOCUMENT-IDENTIFIER: US 5795760 A

TITLE: Purified Myceliophthora laccases and nucleic acids encoding same  
DATE-ISSUED: August 18, 1998

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Berka; Randy Michael	Davis	CA	N/A	N/A
Brown; Stephen H.	Davis	CA	N/A	N/A
Xu; Feng	Woodland	CA	N/A	N/A
Schneider; Palle	Ballerup	N/A	N/A	DKX
Oxenb.o slashed.11; Karen M.	Charlottenlund	N/A	N/A	DKX
Aaslyng; Dorrit A.	Vaerloese	N/A	N/A	DKX

US-CL-CURRENT: 435/189; 435/243, 435/252.3, 435/254.11, 435/254.3, 435/320.1, 435/69.1, 435/71.1, 536/23.2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Image
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☐ 18. Document ID: US 5770419 A

Entry 18 of 22

File: USPT

Jun 23, 1998

US-PAT-NO: 5770419  
DOCUMENT-IDENTIFIER: US 5770419 A

TITLE: Mutants of Myceliophthora laccase with enhanced activity  
DATE-ISSUED: June 23, 1998

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Feng; Xu	Woodland	CA	N/A	N/A
Berka; Randy M.	Davis	CA	N/A	N/A
Wahleithner; Jill Angela	Davis	CA	N/A	N/A

US-CL-CURRENT: 435/189; 435/252.3, 435/252.33, 435/254.1, 435/255.1, 435/256.1, 435/320.1, 536/23.1, 536/23.2, 536/23.7, 536/23.74



Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Image
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☐ 19. Document ID: US 5770418 A

Entry 19 of 22

File: USPT

Jun 23, 1998

US-PAT-NO: 5770418

DOCUMENT-IDENTIFIER: US 5770418 A

TITLE: Purified polyporus laccases and nucleic acids encoding same  
 DATE-ISSUED: June 23, 1998

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Yaver; Debbie Sue	Davis	CA	N/A	N/A
Xu; Feng	Woodland	CA	N/A	N/A
Dalb.o slashed.ge; Henrik	Virum	N/A	N/A	DKX
Schneider; Palle	Bellerup	N/A	N/A	DKX
A.ae buttet.lyng; Dorrit A.	Vaerloese	N/A	N/A	DKX

US-CL-CURRENT: 435/189; 435/252.3, 435/254.11, 435/254.3, 435/320.1, 435/325,  
536/23.2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Image
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☐ 20. Document ID: US 5667531 A

Entry 20 of 22

File: USPT

Sep 16, 1997

US-PAT-NO: 5667531

DOCUMENT-IDENTIFIER: US 5667531 A

TITLE: Dye compositions containing purified polyporus laccases and nucleic acids  
 encoding same  
 DATE-ISSUED: September 16, 1997

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Yaver; Debbie Sue	Davis	CA	N/A	N/A
Xu; Feng	Woodland	CA	N/A	N/A
Dalb.o slashed.ge; Henrik	Virum	N/A	N/A	DKX
Schneider; Palle	Ballerup	N/A	N/A	DKX
Aaslyng; Dorrit A.	V.ae buttet.rloese	N/A	N/A	DKX

US-CL-CURRENT: 8/401; 206/823, 222/94, 435/128, 435/156, 435/254.3, 8/405, 8/406

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Image
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Entry 21 of 22

File: USPT

Oct 9, 1990

US-PAT-NO: 4961925

DOCUMENT-IDENTIFIER: US 4961925 A

TITLE: Hair preparation composition

DATE-ISSUED: October 9, 1990

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Tsujino; Yoshio	Izumisano	N/A	N/A	JPX
Yokoo; Yoshiharu	Sagamihara	N/A	N/A	JPX
Sakato; Kuniaki	Atsugi	N/A	N/A	JPX
Hagino; Hiroshi	Tokyo	N/A	N/A	JPX

US-CL-CURRENT: 424/70.2; 424/94.4, 8/401, 8/406

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Image
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☐ **22. Document ID: US 3919102 A**

Entry 22 of 22

File: USPT

Nov 11, 1975

US-PAT-NO: 3919102

DOCUMENT-IDENTIFIER: US 3919102 A

TITLE: Composition and method for activating oxygen utilizing N-acylated tetraaza-bicyclo-nonandiones

DATE-ISSUED: November 11, 1975

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kuhling; Dieter	Monheim	N/A	N/A	DT
Bloching; Helmut	Hilden	N/A	N/A	DT

US-CL-CURRENT: 8/111; 252/186.39, 252/186.41, 510/303, 510/313, 510/372, 510/376

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Image
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FILE 'REGISTRY' ENTERED AT 15:33:55 ON 27 APR 2000

FILE 'CAPLUS' ENTERED AT 15:34:00 ON 27 APR 2000

L1 651661 SEA ENZYME?  
L2 79033 SEA OXIDASE? OR URICASE?  
L3 58287 SEA HAIR? OR KERATIN?  
L4 203553 SEA DYE? OR COLRO? OR COLOUR?  
L5 8628 SEA OXIDOREDUCTASE? OR (OXIDO (W) REDUCTASE?)  
L6 0 SEA DIELECTRON REDUCING  
L7 158384 SEA LACCASE? OR PEROXIDASE? OR AMYLASE? OR CELLULASE? OR  
PROTEASE? OR LACTASE?  
L8 128063 SEA DONOR?  
L9 420382 SEA GLUCOSE? OR SORBOSE? OR XYLOSE? OR GLYCEROL? OR  
DIHYDROXYAC ETONE? OR (DIHYDROXY (W) ACETONE?) OR LACTIC OR LACTATE?  
OR PYRUVIC OR PYRUVATE? OR URIC OR URICATE?  
L10 316907 SEA COLOR?  
L11 4219 SEA L3 AND L4  
L12 5947 SEA (L1 OR L2 OR L7) AND L5  
L13 544432 SEA L8 OR L9  
L14 34 SEA (L2 OR L12) AND L13 AND L3 AND (L4 OR L10)  
D IBIB ABS HIT 1-

L14 ANSWER 21 OF 34 CAPLUS COPYRIGHT 2000 ACS  
 ACCESSION NUMBER: 1998:351734 CAPLUS  
 DOCUMENT NUMBER: 129:45106  
 TITLE: Agents for **dyeing** and decolorizing fibers  
 INVENTOR(S): Kunz, Manuela; Le Cruer, Dominique  
 PATENT ASSIGNEE(S): Wella A.-G., Germany; Kunz, Manuela; Le Cruer, Dominique  
 SOURCE: PCT Int. Appl., 86 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 3  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9822078	A1	19980528	WO 1997-EP4699	19970829
W: BR, JP, US				
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
DE 19647493	C1	19980402	DE 1996-19647493	19961116
DE 19647494	C1	19980409	DE 1996-19647494	19961116
DE 19716780	C1	19981126	DE 1997-19716780	19970422
EP 889719	A1	19990113	EP 1997-944806	19970829
R: DE, ES, FR, GB, IT				
BR 9707147	A	19990406	BR 1997-7147	19970829
JP 2000504348	T2	20000411	JP 1998-523101	19970829
PRIORITY APPLN. INFO.:				
			DE 1996-19647493	19961116
			DE 1996-19647494	19961116
			DE 1997-19716780	19970422
			WO 1997-EP4699	19970829

AB A multicomponent kit to **dye** or decolorize fibers, esp.  
**hair**, comprises agents for oxidative or nonoxidative **dyeing** of fibers as the 1st component, and agents for subsequent removal of the **coloring** by redn. with a reductone and/or thiol and/or sulfite as the 2nd component. Thus, a **dye** compn. contg. 1,4-diamino-2-(2-hydroxyethyl)benzene sulfate 0.62, 1,4-diamino-2-methylbenzene sulfate 0.55, 5-amino-2-methylphenol 0.61, di-Na EDTA 0.30, Na2SO3 0.40, 28% aq. Na lauryl ether sulfate 10.00, iso-PROH 10.00, 25% aq. NH3 9.10, and demineralized water to 100.00 g was mixed 1:1 with 6% H2O2 soln. and applied to the **hair** for 30 min at 40.degree. to produce a deep violet **color**. Treatment of the washed, dried **hair** with a decolorizing gel contg. ascorbic acid 5.00, methylhydroxyethylcellulose 2.00, cysteine 2.00, Na2SO3 0.05, and H2O to 100.00 g resulted in 87% removal of the **color**.  
 TI Agents for **dyeing** and decolorizing fibers  
 AB A multicomponent kit to **dye** or decolorize fibers, esp.  
**hair**, comprises agents for oxidative or nonoxidative **dyeing** of fibers as the 1st component, and agents for subsequent removal of the **coloring** by redn. with a reductone and/or thiol and/or sulfite as the 2nd component. Thus, a **dye** compn. contg. 1,4-diamino-2-(2-hydroxyethyl)benzene sulfate 0.62, 1,4-diamino-2-methylbenzene sulfate 0.55, 5-amino-2-methylphenol 0.61, di-Na EDTA 0.30, Na2SO3 0.40, 28% aq. Na lauryl ether sulfate 10.00, iso-PROH 10.00, 25% aq. NH3 9.10, and demineralized water to 100.00 g was mixed 1:1 with 6% H2O2 soln. and applied to the **hair** for 30 min at 40.degree. to

produce a deep violet **color**. Treatment of the washed, dried **hair** with a decolorizing gel contg. ascorbic acid 5.00, methylhydroxyethylcellulose 2.00, cysteine 2.00, Na<sub>2</sub>SO<sub>3</sub> 0.05, and H<sub>2</sub>O

to 100.00 g resulted in 87% removal of the **color**.

ST **hair dye** decolorization kit; oxidative **hair dye** decolorization kit

IT Decolorizing agents  
Grains (particles)  
**Hair** creams  
**Hair** dyes  
**Hair** gels  
**Hair** mousses  
Oxidative **hair** dyes  
Powders  
Reducing agents  
(agents for **dyeing** and decolorizing fibers)

IT Sulfites  
Thiols (organic), biological studies  
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES  
(Uses)  
(agents for **dyeing** and decolorizing fibers)

IT Tablets  
(effervescent, agents for **dyeing** and decolorizing fibers)

IT **Hair** preparations  
(emulsions; agents for **dyeing** and decolorizing fibers)

IT Cosmetic emulsions  
(**hair** prepns.; agents for **dyeing** and decolorizing fibers)

IT **Hair** preparations  
(liqs.; agents for **dyeing** and decolorizing fibers)

IT Effervescent materials  
(tablets; agents for **dyeing** and decolorizing fibers)

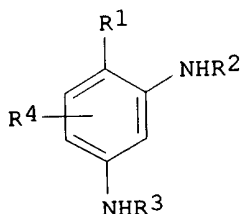
IT 94158-13-1, HC Red No. 13  
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES  
(Uses)  
(HC Red No. 13; agents for **dyeing** and decolorizing fibers)

IT 50-81-7, L-Ascorbic acid, biological studies 50-81-7D, L-Ascorbic acid,  
esters 50-99-7, D-Glucose, biological studies 52-67-5,  
Penicillamine 52-89-1, L-Cysteine hydrochloride 52-90-4,  
L-Cysteine,  
biological studies 60-23-1, Cysteamine 70-18-8, Glutathione,  
biological studies 80-72-8 89-65-6, Isoascorbic acid 89-65-6D,  
Isoascorbic acid, esters 90-15-3, 1-Naphthol 95-53-4, biological  
studies 106-50-3, 1,4-Benzenediamine, biological studies 108-45-2,  
1,3-Benzenediamine, biological studies 108-46-3, 1,3-Benzenediol,  
biological studies 123-30-8 134-03-2, Sodium ascorbate 137-66-6,  
6-O-Palmitoylascorbic acid 497-15-4 591-27-5, 3-Aminophenol  
608-25-3, 1,3-Dihydroxy-2-methylbenzene 615-50-9 616-91-1,  
N-Acetylcysteine 770-25-2 814-71-1, Calcium thioglycolate  
2835-95-2,  
5-Amino-2-methylphenol 2835-99-6, 4-Amino-3-methylphenol  
4124-63-4,  
Mercaptoacetaldehyde 4319-02-2, 3,5-Dihydroxy-4-methoxybenzoic acid  
5697-02-9 6027-13-0, L-Homocysteine 6358-09-4 7757-83-7, Sodium  
sulfite 9001-37-0, Glucose oxidase 9003-99-0,  
Peroxidase 15872-73-8 32190-98-0, 2,5-Diamino-4-methylphenol  
dihydrochloride 49647-58-7, 2,4,5,6-Tetraaminopyrimidine sulfate  
53222-92-7, 3-Amino-2-methylphenol 55302-96-0,  
5-(2-Hydroxyethyl)amino-2-  
methylphenol 66422-95-5 73793-80-3 81892-72-0, 1,3-Bis(2,4-  
diaminophenoxy)propane 83763-48-8 90817-34-8 93841-25-9  
94158-14-2  
119004-86-3 132885-85-9, HC Blue No. 12 155601-17-5 207923-06-6  
207923-07-7  
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES  
(Uses)  
(agents for **dyeing** and decolorizing fibers)

L14 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2000 ACS  
 ACCESSION NUMBER: 1997:632602 CAPLUS  
 DOCUMENT NUMBER: 127:283170  
 TITLE: Agent and process for oxidative **dyeing** of  
**keratin** fibers  
 INVENTOR(S): Kunz, Manuela; Le Cruer, Dominique  
 PATENT ASSIGNEE(S): Wella Aktiengesellschaft, Germany  
 SOURCE: Eur. Pat. Appl., 11 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 795313	A2	19970917	EP 1996-119343	19961203
EP 795313	A3	19971022		
R: DE, ES, FR, GB, IT				
DE 19610392	A1	19970918	DE 1996-19610392	19960316
JP 09249540	A2	19970922	JP 1996-355385	19961219
JP 10007538	A2	19980113	JP 1997-67270	19970304
US 5849041	A	19981215	US 1997-811614	19970305
BR 9701309	A	19980818	BR 1997-1309	19970314
			DE 1996-19610392	19960316

PRIORITY APPLN. INFO.:  
 OTHER SOURCE(S): MARPAT 127:283170  
 GI



- AB An oxidative **hair dye** compn. comprises an O2  
**oxidoreductase**/substrate system, a **peroxidase**, and a  
 m-phenylenediamine coupler [I; C1-6 alkoxy, (substituted) C1-6 alkyl;  
 R2,  
 R3 = H, (substituted) C1-6 alkyl or mono- or dioxaalkyl; R4 = H, C1-6  
 alkyl] and has a pH of 6-9.5. Such compns. do not damage the **hair**  
 and provide intense **coloration**, esp. when combined with direct  
**dyes**. Thus, a **hair dye** compn. contg.  
 hydroxyethyl-p-phenylenediamine sulfate 0.025 mol, 2-amino-4-(2'-  
 hydroxyethyl)aminoaniline sulfate 0.025 mol, **glucose**  
**oxidase** (EC 1.1.3.4) 400 U, **peroxidase** (EC 1.11.1.7) 400  
 U, iso-PrOH 5.000, 1,2-propanediol 2.000, PEG-20 stearyl ether 1.400,  
 glycerin 1.000, **glucose** 1.000, di-Na EDTA 0.300, ascorbic acid  
 0.100, 2-amino-6-chloro-4-nitrophenol 0.075, and 0.1M borate buffer to  
 100.000 g, adjusted to pH 7.7 and applied to bleached **hair** for  
 30 or 60 min at room temp., conferred an intense brown **color** on  
 the **hair**.  
 TI Agent and process for oxidative **dyeing** of **keratin**  
 fibers  
 AB An oxidative **hair dye** compn. comprises an O2  
**oxidoreductase**/substrate system, a **peroxidase**, and a

R2,

m-phenylenediamine coupler [I; C1-6 alkoxy, (substituted) C1-6 alkyl;

R3 = H, (substituted) C1-6 alkyl or mono- or oxaalkyl; R4 = H, C1-6 alkyl] and has a pH of 6-9.5. Such compns. do not damage the hair and provide intense coloration, esp. when combined with direct dyes. Thus, a hair dye compn. contg.

hydroxyethyl-p-phenylenediamine sulfate 0.025 mol, 2-amino-4-(2'-hydroxyethyl)aminoaniline sulfate 0.025 mol, glucose

oxidase (EC 1.1.3.4) 400 U, peroxidase (EC 1.11.1.7) 400

U, iso-ProH 5.000, 1,2-propanediol 2.000, PEG-20 stearyl ether 1.400, glycerin 1.000, glucose 1.000, di-Na EDTA 0.300, ascorbic acid

0.100, 2-amino-6-chloro-4-nitrophenol 0.075, and 0.1M borate buffer to 100.000 g, adjusted to pH 7.7 and applied to bleached hair for

30 or 60 min at room temp., conferred an intense brown color on the hair.

ST oxidative hair dye oxidoreductase

peroxidase; phenylenediamine hair dye

oxidoreductase peroxidase

IT Oxidative hair dyes

(agent and process for oxidative dyeing of keratin fibers)

IT 50-21-5, biological studies 50-99-7, D-Glucose, biological studies 57-88-5, Cholesterol, biological studies 64-17-5, Ethanol,

biological studies 69-89-6, Xanthine 69-93-2, Uric acid,

biological studies 95-55-6, o-Aminophenol 95-70-5,

2,5-Diaminotoluene

106-50-3, 1,4-Benzenediamine, biological studies 127-17-3,

Pyruvic acid, biological studies 144-62-7, Ethanedioic acid,

biological studies 615-50-9 2835-99-6, 4-Amino-m-cresol

9001-37-0,

Glucose oxidase 9001-96-1, Pyruvate

oxidase 9002-12-4, Uricase 9002-17-9, Xanthine

oxidase 9003-99-0, Peroxidase 9028-72-2,

Lactate oxidase 9028-76-6, Cholesterol oxidase

9031-79-2, Oxalate oxidase 9055-15-6, Oxidoreductase

9073-63-6, Alcohol oxidase 66422-95-5 75448-50-9

77636-89-6 83763-48-8 90267-82-6 93841-24-8 93841-25-9

144630-46-6 144630-47-7 196408-55-6 196408-56-7 196408-57-8

RL: BUU (Biological use, unclassified); BIOL (Biological study); USES

(Uses)

(agent and process for oxidative dyeing of keratin fibers)

L14 ANSWER 24 OF 34 CAPLUS COPYRIGHT 2000 ACS

ACCESSION NUMBER: 1996:745599 CAPLUS

DOCUMENT NUMBER: 126:71835

TITLE: Evaluation of **uricase** activity in a **hair-color** product

AUTHOR(S): Tsujino, Yoshio; Komure, Natsumi; Tomura, Kazuyo; Katano, Hajime

CORPORATE SOURCE: R and D Dep., Yamahatsu Sangyo Kaisha Ltd., Osaka, 557, Japan

SOURCE: Bunseki Kagaku (1996), 45(12), 1107-1110

CODEN: BNSKAK; ISSN: 0525-1931

PUBLISHER: Nippon Bunseki Kagakkai

DOCUMENT TYPE: Journal

LANGUAGE: Japanese

AB The oxygen-electrode method for evaluating **uricase** activity in a **hair-color** product contg. an oxidn. **dye** precursor was developed. **Uricase** catalyzes the following reaction; **uric** acid + O<sub>2</sub> + 2H<sub>2</sub>O .fwdarw. allantoin + CO<sub>2</sub> + H<sub>2</sub>O<sub>2</sub>. The proposed method for the **uricase** activity assay was based on a measurement of the rate of O<sub>2</sub> consumption. The rate const. (k) was detd. by an anal. of [O<sub>2</sub>] vs. t curves. This reaction was also found

to be explained by the Michaelis-Menten equation. Accordingly, k vs. the dose of **uricase** plots gave a straight line in the range of 0.045-1.59 units mL<sup>-1</sup>. The detd. values of k showed no influence

upon the addn. of p-phenylenediamine as an oxidn. **dye** precursor. The proposed method was successfully applied to an evaluation of the **uricase** activity in a **hair-color** product.

TI Evaluation of **uricase** activity in a **hair-color** product

AB The oxygen-electrode method for evaluating **uricase** activity in a **hair-color** product contg. an oxidn. **dye** precursor was developed. **Uricase** catalyzes the following reaction; **uric** acid + O<sub>2</sub> + 2H<sub>2</sub>O .fwdarw. allantoin + CO<sub>2</sub> + H<sub>2</sub>O<sub>2</sub>. The proposed method for the **uricase** activity assay was based on a measurement of the rate of O<sub>2</sub> consumption. The rate const. (k) was detd. by an anal. of [O<sub>2</sub>] vs. t curves. This reaction was also found

to be explained by the Michaelis-Menten equation. Accordingly, k vs. the dose of **uricase** plots gave a straight line in the range of 0.045-1.59 units mL<sup>-1</sup>. The detd. values of k showed no influence

upon the addn. of p-phenylenediamine as an oxidn. **dye** precursor. The proposed method was successfully applied to an evaluation of the **uricase** activity in a **hair-color** product.

ST **uricase** detn **hair dye** oxygen electrode

IT Oxidative **hair dyes**  
(detn. of **uricase** in **hair dye** by oxygen-electrode method)

IT Ion-selective electrodes  
(oxygen-selective; detn. of **uricase** in **hair dye** by oxygen-electrode method)

IT 9002-12-4, **Uricase**  
RL: ANT (Analyte); ANST (Analytical study)  
(detn. of **uricase** in **hair dye** by oxygen-electrode method)

IT 7782-44-7, Oxygen, analysis  
RL: ANT (Analyte); ANST (Analytical study)  
(dissolved; detn. of **uricase** in **hair dye** by oxygen-electrode method)

IT 106-50-3, 1,4-Benzenediamine, miscellaneous  
RL: MSC (Miscellaneous)



(p-phenylenediamine of **hair dye** no relation to

L14 ANSWER 25 OF 34 CAPLUS COPYRIGHT 2000 ACS  
 ACCESSION NUMBER: 1996:464484 CAPLUS  
 DOCUMENT NUMBER: 125:95537  
 TITLE: Stable one-pack oxidative hair dye composition containing uricase  
 INVENTOR(S): Tsujino, Yoshio; Tomura, Kazuyo  
 PATENT ASSIGNEE(S): Yamahatsu Sangyo Kaisha Ltd., Japan  
 SOURCE: Eur. Pat. Appl., 20 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 716846	A1	19960619	EP 1995-108786	19950607
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
CA 2150596	AA	19960617	CA 1995-2150596	19950531
AU 9536624	A1	19960627	AU 1995-36624	19951031
JP 08217652	A2	19960827	JP 1995-324370	19951213
CN 1132623	A	19961009	CN 1995-119895	19951213
			JP 1994-313175	19941216

PRIORITY APPLN. INFO.:

AB A 1-pack-type oxidative hair dye compn. with improved stability comprises uricase, an oxidative dye, uric acid, and optionally a reducing agent whose electrode potential is more pos. than that of ascorbic acid but more neg. than

that of uric acid. The pH of the compn. is 6.7-9.5. Thus, a hair dye contg. p-phenylenediamine 2.0, m-phenylenediamine-HCl 0.1, m-aminophenol 0.8, Na2SO3 0.08, polyoxyethylene cetyl ether 8.0, stearyl alc. 2.5, oleyl alc. 5.0,

behenyl alc. 2.0, cetyl alc. 2.0, cetyltrimethylammonium chloride 1.0, glycerol 2.0, uricase (20 IU/mg) 1.5, uric acid 5.0, ethanolamine to pH 8.75, and water to 100 wt.% conferred a grayish color on white hair.

TI Stable one-pack oxidative hair dye composition containing uricase

AB A 1-pack-type oxidative hair dye compn. with improved stability comprises uricase, an oxidative dye, uric acid, and optionally a reducing agent whose electrode potential is more pos. than that of ascorbic acid but more neg. than

that of uric acid. The pH of the compn. is 6.7-9.5. Thus, a hair dye contg. p-phenylenediamine 2.0, m-phenylenediamine-HCl 0.1, m-aminophenol 0.8, Na2SO3 0.08, polyoxyethylene cetyl ether 8.0, stearyl alc. 2.5, oleyl alc. 5.0,

behenyl alc. 2.0, cetyl alc. 2.0, cetyltrimethylammonium chloride 1.0, glycerol 2.0, uricase (20 IU/mg) 1.5, uric acid 5.0, ethanolamine to pH 8.75, and water to 100 wt.% conferred a grayish color on white hair.

ST oxidative hair dye uricase urate

IT Reducing agents (as stabilizers; stable one-pack oxidative hair dye compn. contg. uricase)

IT Stabilizing agents (reducing agents as; stable one-pack oxidative hair dye compn. contg. uricase)

IT Hair preparations (dyes, oxidative, stable one-pack oxidative hair

**dye compn. contg. uricase)**  
IT 68-11-1, Thioglycolic acid, biological studies 134-03-2, Sodium  
ascorbate 6-91-1, N-Acetyl-L-cysteine 4-22-9, DL-Cysteine  
7757-83-7, Sodium sulfite  
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES  
(Uses)  
(stabilizer; stable one-pack oxidative **hair dye**  
**compn. contg. uricase)**  
IT 69-93-2, **Uric** acid, biological studies 95-55-6, o-Aminophenol  
106-50-3, p-Phenylenediamine, biological studies 108-45-2,  
m-Phenylenediamine, biological studies 123-30-8, p-Aminophenol  
541-69-5, m-Phenylenediamine hydrochloride 591-27-5, m-Aminophenol  
9002-12-4, **Uricase** 19142-74-6, Potassium urate  
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES  
(Uses)  
(stable one-pack oxidative **hair dye** compn. contg.

L14 ANSWER 26 OF 34 CAPLUS COPYRIGHT 2000 ACS

ACCESSION NUMBER: 1996:440704 CAPLUS

DOCUMENT NUMBER: 125:87281

TITLE: Significance of **Uricase** in **Oxidase**  
-Induced Oxidative **Coloring** Reaction of  
p-Phenylenediamine

AUTHOR(S): Aoki, Masahiro; Tsujino, Yoshio; Kano, Kenji;  
Ikeda,

Tokuji  
CORPORATE SOURCE: Faculty of Agriculture, Kyoto University, Kyoto,  
606-01, Japan

SOURCE: J. Org. Chem. (1996), 61(16), 5610-5616  
CODEN: JOCEAH; ISSN: 0022-3263

DOCUMENT TYPE: Journal

LANGUAGE: English

AB **Uricase** (UOD) induces the oxidative polymn. of  
p-phenylenediamine (PPD) effectively, which is a key reaction of  
**color** development in **hair dyeing** and fur  
**dyeing**. The significance of **uricase** is described by  
comparison to **glucose oxidase** (GOD), which also  
produces hydrogen peroxide as an oxidizing agent of PPD. In contrast

to  
UOD, GOD inhibits the polymn. reaction. Spectroscopic and  
electrochem.

study has revealed that the inhibition effect of GOD is ascribed to  
the

**glucose** dehydrogenase activity, in which p-benzoquinonediimine  
(BQI) as the two-electron oxidized form of PPD works as an efficient  
electron acceptor to be reduced back to PPD, resulting in the  
inhibition

of the subsequent polymn. of BQI. On the other hand, the UOD reaction  
does not compete with the polymn. of BQI owing to the lack of urate  
dehydrogenase activity in UOD. In addn., UOD catalyzes the oxidn. of

PPD  
in the presence of **uric** acid by PPD **oxidase**-like and  
PPD peroxidase-like activities. These properties of UOD are favorable  
toward the oxidative generation of BQI from PPD and are responsible

for  
the prominent ability in the oxidative **coloring** of PPD.

TI Significance of **Uricase** in **Oxidase**-Induced Oxidative  
**Coloring** Reaction of p-Phenylenediamine

AB **Uricase** (UOD) induces the oxidative polymn. of  
p-phenylenediamine (PPD) effectively, which is a key reaction of  
**color** development in **hair dyeing** and fur  
**dyeing**. The significance of **uricase** is described by  
comparison to **glucose oxidase** (GOD), which also  
produces hydrogen peroxide as an oxidizing agent of PPD. In contrast

to  
UOD, GOD inhibits the polymn. reaction. Spectroscopic and  
electrochem.

study has revealed that the inhibition effect of GOD is ascribed to  
the

**glucose** dehydrogenase activity, in which p-benzoquinonediimine  
(BQI) as the two-electron oxidized form of PPD works as an efficient  
electron acceptor to be reduced back to PPD, resulting in the  
inhibition

of the subsequent polymn. of BQI. On the other hand, the UOD reaction  
does not compete with the polymn. of BQI owing to the lack of urate  
dehydrogenase activity in UOD. In addn., UOD catalyzes the oxidn. of

PPD  
in the presence of **uric** acid by PPD **oxidase**-like and  
PPD peroxidase-like activities. These properties of UOD are favorable  
toward the oxidative generation of BQI from PPD and are responsible

for

the prominent ability in the oxidative coloring of PPD.  
ST phenylenediamine polymn catalyst uricase; hair fur  
dyeing phenylenediamine catalyst  
IT Oxidation catalysts  
(uricase-catalyzed polymn. and oxidn. of p-phenylenediamine  
and its significance in dyeing of hair and fur)  
IT Dyeing  
Fur  
Hair  
Polymerization catalysts  
(uricase-catalyzed polymn. of p-phenylenediamine and its  
significance in dyeing of hair and fur)  
IT 9002-12-4, Uricase  
RL: CAT (Catalyst use); USES (Uses)  
(uricase-catalyzed polymn. of p-phenylenediamine and its  
significance in dyeing of hair and fur)  
IT 25168-37-0P, Poly(p-phenylenediamine)  
RL: SPN (Synthetic preparation); TEM (Technical or engineered material  
use); PREP (Preparation); USES (Uses)  
(uricase-catalyzed polymn. of p-phenylenediamine and its  
significance in dyeing of hair and fur)

L14 ANSWER 29 OF 34 CAPLUS COPYRIGHT 2000 ACS  
 ACCESSION NUMBER: 1994:143670 CAPLUS  
 DOCUMENT NUMBER: 120:143670  
 TITLE: **Hair dye** preparations containing  
 indole or indoline derivatives, hydrogen peroxide

and

INVENTOR(S): a peroxidase  
 Samain, Henri; Dubief, Claude  
 PATENT ASSIGNEE(S): Oreal S. A., Fr.  
 SOURCE: PCT Int. Appl., 30 pp.  
 CODEN: PIXXD2

DOCUMENT TYPE: Patent  
 LANGUAGE: French

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9400100	A1	19940106	WO 1993-FR617	19930622
W: CA, JP, US				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
FR 2692782	A1	19931231	FR 1992-7784	19920625
FR 2692782	B1	19950623		
EP 645999	A1	19950405	EP 1993-913170	19930622
EP 645999	B1	19960131		
R: DE, FR, GB				
JP 07508271	T2	19950914	JP 1993-502094	19930622
US 5538517	A	19960723	US 1995-360850	19950308
			FR 1992-7784	19920625
			WO 1993-FR617	19930622

PRIORITY APPLN. INFO.:

OTHER SOURCE(S): MARPAT 120:143670

AB **Hair dye** prepns. contain indole or indoline derivs.  
 (Markush structure given), H<sub>2</sub>O<sub>2</sub> and a peroxidase. A **hair dye** comprised 5,6-dihydroxyindole 1, EtOH 10, water q.s. to 100g, pH=6.4 in a container and horseradish peroxidase 2600 unit, 20 vol.

H2O2 2.5, monoethanolamine q.s. pH=5.1, and water 100g in a sep. container.

TI **Hair dye** preparations containing indole or indoline derivatives, hydrogen peroxide and a peroxidase

AB **Hair dye** prepns. contain indole or indoline derivs.  
 (Markush structure given), H<sub>2</sub>O<sub>2</sub> and a peroxidase. A **hair dye** comprised 5,6-dihydroxyindole 1, EtOH 10, water q.s. to 100g, pH=6.4 in a container and horseradish peroxidase 2600 unit, 20 vol.

H2O2 2.5, monoethanolamine q.s. pH=5.1, and water 100g in a sep. container.

ST **hair dye** indole hydrogen peroxide peroxidase; indoline **hair dye** hydrogen peroxide peroxidase

IT **Hair** preparations  
 (dyes, indole or indoline derivs. and hydrogen peroxide and peroxidase in)

IT Carbohydrates and Sugars, biological studies  
 RL: PREP (Preparation)  
 (pyranoses, in hydrogen peroxide prepn., for **hair dye** compns. contg. indole or indoline derivs. and peroxidase)

IT 1953-54-4, 5-Hydroxyindole 2380-82-7, 6-Hydroxy 5-methoxyindole 2380-84-9, 7-Hydroxyindole 2380-86-1, 6-Hydroxyindole 2380-94-1, 4-Hydroxyindole 3131-52-0, 5,6-Dihydroxyindole 4790-08-3, 5,6-Dihydroxyindole 2-carboxylic acid 4813-45-0, 3-Methyl 5,6-dihydroxyindole 4821-00-5, 1-Methyl 5,6-dihydroxyindole 4821-01-6, 2-Methyl 5,6-dihydroxyindole 5107-75-5, 2,3-Dimethyl-5,6-dihydroxyindole 5192-03-0, 5-Aminoindole 5192-04-1, 7-Aminoindole 5192-23-4,

4-Aminoindole 29539-03-5, 5,6-Dihydroxyindoline 74795-36-1,  
5-Methoxy  
6-hydroxyindoline 119963-90-5, 2-Methyl 5,6-dihydroxyindole  
hydrobromide  
121545-88-8, 4,5-Dihydroxyindoline 121545-90-2, 4-Hydroxy  
5-methoxyindoline 139721-20-3, N-Ethyl 5,6-dihydroxyindoline  
139721-21-4, N-Methyl 5,6-dihydroxyindoline 139721-22-5, N-Butyl  
5,6-dihydroxyindoline 151980-97-1, 6-Hydroxy-7-methoxyindoline  
151980-99-3, 6,7-Dihydroxyindoline  
RL: BIOL (Biological study)  
(hair dye prepns. contg. hydrogen peroxide and  
peroxidase and)  
IT 9003-99-0, Peroxidase  
RL: BIOL (Biological study)  
(hair dye prepns. contg. indole or indoline derivs.  
and hydrogen peroxide and)  
IT 7722-84-1, Hydrogen peroxide, biological studies  
RL: BIOL (Biological study)  
(hair dye prepns. contg. indole or indoline derivs.  
and peroxidase and)  
IT 50-21-5, Lactic acid, biological studies 50-99-7,  
Glucose, biological studies 56-84-8, Aspartic acid, biological  
studies 56-86-0, Glutamic acid, biological studies 59-23-4,  
Galactose,  
biological studies 64-17-5, Ethanol, biological studies 67-63-0,  
Isopropanol, biological studies 69-93-2, Uric acid, biological  
studies 87-79-6, L-Sorbose 127-17-3, Pyruvic acid,  
biological studies 144-62-7, Oxalic acid, biological studies  
9001-37-0, Glucose oxidase 9001-96-1,  
Pyruvate oxidase 9002-12-4, Uricase  
9028-72-2, Lactate oxidase 9028-79-9, Galactose  
oxidase 9031-79-2, Oxalate oxidase 9073-63-6,  
Alcohol oxidase 37250-80-9, Pyranose oxidase  
37250-81-0 39346-34-4, Glutamate oxidase 69106-47-4  
71245-08-4, Secondary alcohol oxidase  
RL: BIOL (Biological study)  
(in hydrogen peroxide prepn., for hair dye compns.  
contg. indole or indoline derivs. and peroxidase)

L14 ANSWER 30 OF 34 CAPLUS COPYRIGHT 2000 ACS

ACCESSION NUMBER: 1992:27793 CAPLUS

DOCUMENT NUMBER: 116:27793

TITLE: **Hair coloring and waving using oxidases**

AUTHOR(S): Tsujino, Yoshio; Yokoo, Yoshiharu; Sakato, Kuniaki

CORPORATE SOURCE: Yamahatsu Sangyo Kaisha Ltd., Osaka, 557, Japan

SOURCE: J. Soc. Cosmet. Chem. (1991), 42(4), 273-82

CODEN: JSCCA5; ISSN: 0037-9832

DOCUMENT TYPE: Journal

LANGUAGE: English

AB For **hair coloring** and waving, biochem. oxidn. using

enzymes such as **uricase**, **glucose oxidase**, galactose **oxidase**, laccase, and tyrosinase was investigated in com. formulations instead of the usual chem. oxidns. **Coloring** of goat **hair** was satisfactorily accomplished in the arom. amine precursor system using **uricase** and **glucose oxidase**. While galactose **oxidase** and tyrosinase showed a slight **coloring**, laccase did not lead to any **coloring**. Enzymic **hair** waving was evaluated according to the Kirby method. The results of waving efficiency and wave retention ratio

showed

that the waving effect with **uricase** neutralization is almost equal to that with NaBr.

TI **Hair coloring** and waving using **oxidases**

AB For **hair coloring** and waving, biochem. oxidn. using

enzymes such as **uricase**, **glucose oxidase**, galactose **oxidase**, laccase, and tyrosinase was investigated in com. formulations instead of the usual chem. oxidns. **Coloring** of goat **hair** was satisfactorily accomplished in the arom. amine precursor system using **uricase** and **glucose oxidase**. While galactose **oxidase** and tyrosinase showed a slight **coloring**, laccase did not lead to any **coloring**. Enzymic **hair** waving was evaluated according to the Kirby method. The results of waving efficiency and wave retention ratio

showed

that the waving effect with **uricase** neutralization is almost equal to that with NaBr.

ST **hair coloring** waving **oxidase**

IT **Hair** preparations

(**dyes**, **oxidases** in)

IT **Hair** preparations

(wave-setting, **oxidases** in)

IT 7722-84-1P, Hydrogen peroxide, preparation

RL: FORM (Formation, nonpreparative); PREP (Preparation)  
(formation of, in **oxidase**-contg. **hair**

**coloring** and waving compns.)

IT 9001-05-2, Catalase 9001-37-0, **Glucose oxidase**

9002-10-2, Tyrosinase 9002-12-4, **Uricase** 9028-79-9,

Galactose **oxidase** 9031-76-9, Mutarotase 9035-73-8,

**Oxidase** 80498-15-3, Laccase

RL: BIOL (Biological study)

(**hair coloring** and waving compns. contg.)

IT 7647-15-6, Sodium bromide, uses

RL: USES (Uses)

(**hair** waving compns. contg., **oxidase** in relation to)

IT 7789-38-0, Sodium bromate

RL: BIOL (Biological study)

(**hair** waving in relation to **oxidases** and)



L14 ANSWER 31 OF 34 CAPLUS COPYRIGHT 2000 ACS

ACCESSION NUMBER: 1991:519807 CAPLUS

DOCUMENT NUMBER: 115:119807

TITLE: The application of **oxidases** to **hair dyeing** and permanent waving

AUTHOR(S): Tsujino, Yoshio; Kitayama, Kouji; Yokoo, Yoshiharu;

Yoshiharu;

CORPORATE SOURCE:

SOURCE:

Sakato, Kuniaki

Yamahatsu Sangyo Kaisha, Ltd., Osaka, 557, Japan

J. SCCJ (1991), 24(3), 220-3

CODEN: JOSCDQ; ISSN: 0387-5253

DOCUMENT TYPE:

LANGUAGE:

Journal

Japanese

AB The use of H<sub>2</sub>O<sub>2</sub> produced by enzymic oxidn. was investigated for oxidative

**hair dyeing** and permanent waving. For enzymic oxidns.

**pyruvate oxidase**, **lactate oxidase**,

**glycerol oxidase**, **xanthine oxidase**, **uricase**

and **pyranose oxidase** were used. Successful **dyeing** of

goat **hair** was carried out using **uricase** and **pyranose**

**oxidase** in a com. **hair dyeing** formulation with

p-phenylenediamine. **Uricase** produced the max. H<sub>2</sub>O<sub>2</sub> concn. up to

about 0.06% after 5 min. of reaction at pH 7.0. The effect of enzyme

on

**hair waving** was estd. according to the Kirby method. Results on waving efficiency and wave retention ratio showed that permanent

waving

with **uricase** is almost equiv. to the chem. method with NaBr.

TI The application of **oxidases** to **hair dyeing**

and permanent waving

AB The use of H<sub>2</sub>O<sub>2</sub> produced by enzymic oxidn. was investigated for oxidative

**hair dyeing** and permanent waving. For enzymic oxidns.

**pyruvate oxidase**, **lactate oxidase**,

**glycerol oxidase**, **xanthine oxidase**, **uricase**

and **pyranose oxidase** were used. Successful **dyeing** of

goat **hair** was carried out using **uricase** and **pyranose**

**oxidase** in a com. **hair dyeing** formulation with

p-phenylenediamine. **Uricase** produced the max. H<sub>2</sub>O<sub>2</sub> concn. up to

about 0.06% after 5 min. of reaction at pH 7.0. The effect of enzyme

on

**hair waving** was estd. according to the Kirby method. Results on waving efficiency and wave retention ratio showed that permanent

waving

with **uricase** is almost equiv. to the chem. method with NaBr.

ST **oxidase hair** prepn peroxide

IT **Hair** preparations

(**dyes**, **oxidases** in, for prodn. of hydrogen peroxide)

IT **Hair** preparations

(wave-setting, **oxidases** in, for prodn. of hydrogen peroxide)

IT 9001-96-1, **Pyruvate oxidase** 9002-12-4,

**Uricase** 9002-17-9, **Xanthine oxidase** 9028-72-2,

**Lactate oxidase** 9035-73-8, **Oxidase**

37250-80-9, **Pyranose oxidase** 69669-73-4, **Glycerol oxidase**

RL: BIOL (Biological study)

(hydrogen peroxide produced by, in **hair dye** and permanent waving compns.)

IT 7722-84-1P, Hydrogen peroxide, uses and miscellaneous

RL: PREP (Preparation); USES (Uses)

(**oxidases** prodn. of, in **hair dye** and permanent waving compns.)